



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SAN

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/996,367	12/22/97	AHLGREN	K 41939-42907

W R GRACE & CO.-CONN
P O BOX 464
DUNCAN SC 29334

IM62/0513

EXAMINER

TARAZANO, D

ART UNIT	PAPER NUMBER
----------	--------------

1773

DATE MAILED: 05/13/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/996,367

Applicant(s)
Ahlgren et al.

Examiner
D. Lawrence Tarazano

Group Art Unit
1773

☐ Responsive to communication(s) filed on _____.

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-41 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-41 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4, 5

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 1773

DETAILED ACTION

Claim Objections

1. Claims 21 and 31 are objected to because of the following informalities:

In claims 21 and 31, the word "copolymer" should be inserted following "ethylene vinyl alcohol" since this material is actually a copolymer not merely a simple compound as currently recited.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. Claims 26, 33, 36-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. In claims 26 and 33, it is not clear what is meant by an "abuse layer". Does the applicant mean that the presence of layer improves the resistance of the structure to abuse or something else?
4. It is not clear how the term "substantially symmetrical" should be interpreted. While it is clear in the art what is meant by symmetrical films, it is not clear what is encompassed by the term "substantially symmetrical". The term "substantially" in claim 36 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not

Art Unit: 1773

provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear what amount of deviation from a symmetrical film would be permitted. It is not clear if only minor changes such as variations in thickness would be encompassed by such term or if for example additional or different layers, polymers etc could be present. The use of the term "substantially" renders the scope of the claims unclear.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1-3, 8-11 rejected under 35 U.S.C. 102(e) as being anticipated by Lai et al. (5,278,272).

Lai et al. teach ethylene-alpha olefin polymers having long chain branching (column 3, lines 56+) produced by single site cyclopentadienyl metal catalysts (column 8, lines 10+ and 55+). These ethylene-alpha olefins are produced into blown films, which the polymers are formed into stable bubbles during the blowing process (column 17, lines 20+). Lai et al. further teach that the polymers

Art Unit: 1773

of their invention can be produced into useful articles such as films using conventional processing techniques (column 15, lines 20+) and that blends (column 17, lines 47+) containing said polymers can also be formed into such articles (column 17, lines 64-68). The examples show polymers having densities of 0.870 g/cc, which is within the range claimed by the applicant. The examiner notes that the preferred materials are ethylene alpha olefin copolymers such as octene, (examples), but other alpha-olefins are taught (column 3, claims 9-16).

Regarding claim 2, while Lai et al. is silent regarding the shrinkability of their films, the examiner takes the position that the films produced by blown bubble techniques as described by Lai et al. (column 17, lines 20+, column 15, lines 20+) would inherently have some degree of shrinkability since blown bubble is one of the film forming methods disclosed by the applicants (page 10, lines 29+). Furthermore, the applicant's admit that this procedure is well known to those in the art as producing oriented (shrinkable) films.

7. Claims 1-3, 8-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Lai et al. (5,272,236).

Lai et al. teach blown films produced from substantially linear ethylene / alpha-olefin copolymers having long chain branching (column 3, lines 25-63), (column 20, lines 45+ and column 21). They further teach that blends containing a second polymer can also be formed into conventional structures (ie films).

Art Unit: 1773

8. Claims 1, 2, 12-15, and 36 are rejected under 35 U.S.C. § 102(e) as being clearly anticipated by Ralph 5,272,016.

Ralph teaches a multi layer shrink film comprising metallocene catalyzed polyolefins (VLDPE) (EXACT, a metallocene catalyzed ethylene/butene copolymer available from Exxon, (column 22, line 45; Certificate of Correction). The before mentioned copolymers are mixed in various proportions with an alpha-olefin plastomer having a density of below about 0.90 g/cm³ (Abstract) to produce multi layer symmetrical films (Column 22, Table L) with superior strength, abuse resistance (column 2, line 63), and heat sealability (column 3, line 5), in which EXACT polymers have densities of at least about 0.900 as VLDPE. Regarding claim 15, second surface layer can be considered an inner layer in view of the applicants structures in the examples.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 4-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Lai et al. (5,278,272).

Lai et al. teach that various polymers (column 15, lines 46+) can be blended with the material of their invention in order to produce films of their invention using conventional methods. However, there are not specific examples of films made from these blends. All the materials claimed by the applicants are within the scope of the materials suggested in the reference including heterogeneous

Art Unit: 1773

(conventional) polymers having densities above and below a density of 0.90 g/cc, since the reference suggests using high density or low density materials in the blend. In the absence of unexpected results or any showing of criticality for the use of polymers having the densities claimed, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced heat shrinkable blown films from polymer blends, since these is merely practicing with in the scope of the disclosure of Lai et al.

11. Claim 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lai et al. (5,278,272) in view of the applicants' admissions on page 10, paragraph 4.

Lai et al. as discussed above teach films which are produced from homogeneous polymer. While blow bubble films are produced, there is no specific recitation that the films would be heat shrinkable. However, Lai et al teach that conventional methods can be used to process the polymers of their invention.

The applicant admits on page 10 of the specification that heat shrinkable films are conventionally produced by blow bubble methods and this type of process is well known by those skilled in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced heat shrinkable films using the polymers taught by Lai et al. since they teach that the materials of their invention can be processed using conventional methods and the

Art Unit: 1773

applicants admit that it is conventional and well known in the art to produce heat shrinkable films using blown bubble methods.

12. Claim 1, 2, 6, 8-11, 15-17, rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller et al. (4,532,189) in view of Lai et al. (5,272,236).

Mueller et al. teach heat shrinkable multi-layer films comprising LLDPE wherein DOWLEX 2054 is a commercially available LLDPE (examples I, II, and III). Moreover, example II shows LLDPE blended with ethylene vinyl acetate used in the core layer of a multilayer film. Furthermore, these films have improved optical properties (column 1, lines 13+).

Lai et al. teach a substantially linear polyethylene having long chain branching that has superior properties to conventional polyethylenes. Lai et al. compare one commercially available material, DOWLEX 2054, to the polymers of their invention (see examples 7-9). Lai et al state that the polymers of their invention are superior to conventional polyethylene polymers in terms of gloss, haze and clarity (see examples 10-13). Lai et al. further suggest that resins of their invention would be useful in the production of films (column 20, lines 48+) and useful in blends (column 14, lines 10-54).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use substantially linear olefin polymers of the type taught by Lai et al. in place of the LLDPE,

Art Unit: 1773

used in the films taught by Mueller, in order to produce a film having higher gloss, lower haze, and better clarity which could be more easily produced.

13. Claims 1, 2, 3, 5, 6, 8-13, and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Schoenberg (4,551,380) in view of Schut "Enter a new Generation of Polyolefins" Nov. 1991 Plastics Technology and Van der Sanden et al. "EXACT Linear Polymers of Enhanced Sealing Performance" ANTEC 1992.

Schoenberg teach a heat sealable shrinkable symmetric three layer laminate film comprising a core of linear low density polyethylene (density about 0.90 g/cc) bounded by two surface layers (column 1, line 6). Wherein the surface layers comprise a blend of: (1) linear low density polyethylene (LLDPE) having a density about 0.90 g/cm³, (2) a linear medium density polyethylene having a density about 0.935 g/cm³, and (3) an ethylene/vinyl acetate copolymer (Claim 3). Furthermore, the film can be cross linked by irradiation (column 15, line 5+). However, Schoenberg does not teach the use of polyolefins produced using a single site metallocene catalyst.

Schut teaches in a trade journal article that Exxon is producing a new line of linear low density polyolefins made using homogeneous single site metallocene catalysts, wherein said polyolefins have a density of at least 0.90 g/cc. These polyolefins have physical characteristics far superior to traditional polyolefins produced from Ziegler / Natta catalysis. For example: metallocene catalyzed polyolefins have lower heat-seal initiation temperatures, higher strength (Dart impact results), and better clarity. The superior attributes of these metallocene catalyzed polyolefins are further elaborated in Van der Sanden et al; and they further teach that these polyolefins are a choice material

Art Unit: 1773

in the production of heat sealable films. Finally it should be noted that metallocene catalyzed polyolefins (1-butene, 1-hexene, or 1-octene/ethylene copolymers) are commercially available from Dow in the form of "AFFINITY" or from Exxon in the form of "EXACT."

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used commercially available metallocene catalyzed LLDPE of the type taught by Schut and Van der Sanden et al. in the laminate structure of Schoenberg in order to produce clear puncture resistant films with improved sealability and strength.

14. Claims 1, 2, 12, 13, 18-41 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Evert et al. (5,055,328) in view of Schut "Enter a new Generation of Polyolefins" Nov. 1991 Plastics Technology and Van der Sanden et al. "Exact Linear Polymers of Enhanced Sealing Performance" ANTEC 1992.

Evert et al. teach a multi layer cross linked laminate film comprising a core sandwiched between an inner layer and an outer layer. The heat sealable inner and outer layers comprise (column 7, line 1+; column 8, line 62+) a blend of at least 50% EVA and other suitable polymers and copolymers including α -olefins such as LLDPE and VLDPE. The heat sealable layer may also comprise polypropylene, ethylene-polypropylene copolymer, or an ionomer.

The core (column 8, line 29) can comprise nylon, hydrolyzed ethylene/vinyl acetate copolymer, vinylidene chloride/vinyl chloride copolymer, or vinylidene chloride/methyl acrylate copolymer, but the vinylidene chloride/vinyl chloride copolymer is not a preferred material because

Art Unit: 1773

it discolours during irradiation treatment. However, Evert et al. does not specify the use of LLDPE produced by metallocene catalysis of the type taught by Van der Sanden et al and Schut. As discussed above Van der Sanden et al. and Schut teach that commercially available metallocene catalyzed LLDPE have physical properties far superior to those of analogous LLDPE formed by Ziegler-Natta catalysis.

Nevertheless, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used commercially available metallocene catalyzed LLDPE as discussed by Van der Sanden and Schut in the laminate structure of Evert et al. in order to produce clear films with superior strength and improved heat sealability.

15. Claims 1, 2, 12-15, 18-22, 23-27, 28-31, 33-41 are rejected under 35 U.S.C. § 103 as being unpatentable over Newsome et al. (4,457,960) in view of in view of Schut "Enter a new Generation of Polyolefins" Nov. 1991 Plastics Technology and Van der Sanden et al. "Exact Linear Polymers of Enhanced Sealing Performance" ANTEC 1992.

Newsome et al. teach multi layer films comprising a barrier layer. The film structure can have both three layer and five layer embodiments; wherein the five layer structure can be either symmetrical or asymmetrical (Examples of the laminate structure: column 7, line 64+), and the films must be strong and abuse resistant. The films can also comprise LLDPE which can compose the core, the inner layers, or the outer layers of the films either as a separate layer or as a blend depending on the

Art Unit: 1773

embodiment. The barrier layer can be either ethylene/vinyl alcohol or saran. However, Newsome et al. do not teach the use of metallocene catalyzed LLDPE.


As discussed above Van der Sanden et al. and Schut teach that commercially available metallocene catalyzed LLDPE have physical properties far superior to that of analogous LLDPE formed by Ziegler-Natta catalysis. Furthermore, Schut teaches that EXXPOL EXACT-101 has a total impact strength of 107 in.-lb.

It would have been obvious to one of ordinary skill in the art at the time of invention was made to have used commercially available metallocene catalyzed LLDPE of the type taught by Van der Sanden et al. and Schut in the laminate structure of Newsome in order to produce films with superior strength and performance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Lawrence Tarazano whose telephone number is (703) 308-2379. The examiner can normally be reached on M-F from 8:30 am to 5:30 pm.

The official fax number for the art unit is (703)-305-3599. The special fax number for amendments after final is (703)-305-5408. The number for unofficial faxes is (703)-305-5436.


D. Lawrence Tarazano
Patent Examiner

May 10, 1999